



(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
10.05.2000 Bulletin 2000/19

(51) Int. Cl.⁷: G11C 7/00

(43) Date of publication A2:
10.11.1999 Bulletin 1999/45

(21) Application number: 99108592.9

(22) Date of filing: 07.05.1999

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: 07.05.1998 JP 12436798

(71) Applicant:
KABUSHIKI KAISHA TOSHIBA
Kawasaki-shi, Kanagawa 210-8520 (JP)

(72) Inventors:
• Tsuchida, Kenji
1-1 Shibaura 1-chome Minato-ku Tokyo 105 (JP)
• Toda, Haruki
1-1 Shibaura 1-chome Minato-ku Tokyo 105 (JP)

(74) Representative: HOFFMANN - EITLE
Patent- und Rechtsanwälte
Arabellastrasse 4
81925 München (DE)

(54) Semiconductor memory system, and access control method for semiconductor memory and semiconductor memory

(57) In a semiconductor memory system, an SDRAM comprises a memory cell array (101) which is divided into a plurality of cell array blocks (21), a column decoder (102), a row decoder (103), and a sense amplifier circuit (105). In the SDRAM, a first operation mode with a first cycle time is set when successive access within a cell array block (21) is conducted, a second operation mode with a second cycle time shorter than the first cycle time is set when successive access covering the cell array blocks (21) being apart from each other is conducted and a third operation mode with a medium cycle time is set when successive access covering the cell array blocks (21) adjacent to each other is conducted. With the above constitution, a high speed access can be realized without provision of a specific accessory circuit while suppressing overhead for a semiconductor chip size.

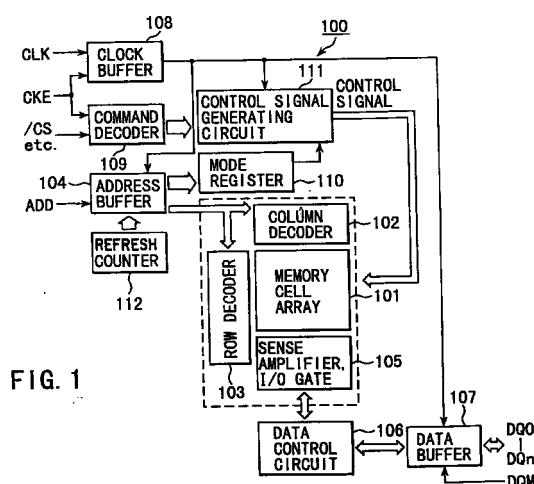


FIG. 1



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 10 8592

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 339 224 A (IBM) 2 November 1989 (1989-11-02) * page 4, line 2-15 * * figures 4,6-10 *	1,2,11, 12,14	G11C7/00
Y	---	4,5	
Y	EP 0 788 110 A (FUJITSU LTD) 6 August 1997 (1997-08-06) * column 1, line 25 - column 2, line 26; figures 3,20,22 *	4,5	
A	---	1,7,8, 11,14	
A	EP 0 771 007 A (CIRRUS LOGIC INC) 2 May 1997 (1997-05-02) * figures 2,3 *	1,4,5, 11,14	
A	US 4 924 375 A (FUNG MICHAEL G ET AL) 8 May 1990 (1990-05-08) * abstract *	3	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
P,A	US 5 815 463 A (SHIAH CHUN ET AL) 29 September 1998 (1998-09-29) * figures 1,3-5 * -----	1,4,11, 14	G11C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 16 March 2000	Examiner Vidal Verdu, J.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>..... & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 10 8592

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16-03-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0339224 A	02-11-1989	JP 2012541 A US 5301278 A	17-01-1990 05-04-1994
EP 0788110 A	06-08-1997	JP 9213068 A	15-08-1997
EP 0771007 A	02-05-1997	US 5654932 A JP 2978784 B JP 9237491 A	05-08-1997 15-11-1999 09-09-1997
US 4924375 A	08-05-1990	US 5051889 A	24-09-1991
US 5815463 A	29-09-1998	NONE	